Electronic Version
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Claims

[c1] What is claimed is:

1.A scintillator array for use in a CT imaging system, comprising:

a plurality of projecting elements disposed proximate one another; and

a glass compound containing a plurality of reflective particles being disposed on the plurality of projecting elements, wherein the projecting elements emit light in response to receiving x-rays.

[c2] 2.The scintillator array of claim 1, wherein the projecting elements are constructed from a ceramic.

[c3] 3.The scintillator array of claim 1, wherein the glass compound comprises at least one of an oxide glass, a fluoride glass, and an oxy-fluoride glass.

[c4] 4.The scintillator array of claim 1, wherein the glass compound has a reflective index less than or equal to 1.6.

[c5] 5.The scintillator array of claim 1, wherein the glass compound contains Chloride for reducing a melting temperature of the glass.

[c6] 6.The scintillator array of claim 1, wherein substantially all of the reflective particles are 100-300 microns in diameter.

[c7] 7.The scintillator array of claim 1, wherein the reflective particles comprise one or more of TiO_2 particles, Ta_2O_5 particles, PbO particles, Bi_2O_3 particles, HfO_2 particles, WO_3 particles, UO_2 particles, Yb_2O_3 particles, and ThO_2 particles.

[c8] 8.The scintillator array of claim 7, wherein the reflective particles are comprise one or more of Highlight particles, gadolinium oxy-sulfide particles, bismuth germenate particles, lutetium orthosilicate particles, gadolinium gallium garnet particles.

[c9] 9.The scintillator array of claim 1, wherein between 20-60 percent of a volume of the glass compound comprises the reflective particles.

[c10] 10.The scintillator array of claim 1, wherein the glass compound contains a light absorber compound.

[c11] 11.The scintillator array of claim 10, wherein the light absorber compound comprises Cr_2O_3.

[c12] 12.A method for manufacturing a scintillator array for use in a CT imaging system, comprising:

mixing a plurality of glass particles with a plurality of reflective particles in a fluid to obtain a mixture;
coating a plurality of projecting elements disposed proximate one another with the mixture;
applying a pressure to the plurality of projecting elements and to the mixture; and
heating the plurality of projecting elements and the mixture to a predetermined temperature to form the scintillator array.

[c13] 13.The method of claim 12, wherein the projecting elements are constructed from a ceramic.

[c14] 14.The method of claim 12, wherein the glass compound comprises one of an oxide glass, a fluoride glass, and an oxy-fluoride glass.

[c15] 15.The method of claim 12, wherein the glass compound has a reflective index less than or equal to 1.6.

[c16] 16.The method of claim 12, wherein the glass compound contains Chloride for reducing a melting temperature of the glass.

[c17] 17.The method of claim 12, wherein substantially all of the reflective particles are 100-300 microns in diameter.

[c18] 18.The method of claim 12, wherein the reflective parti-

cles comprise one or more of TiO_2 particles, Ta_2O_5 particles, PbO particles, Bi_2O_3 particles, HfO_2 particles, WO_3 particles, UO_2 particles, Yb_2O_3 particles, and ThO_2 particles.

[c19] 19.The method of claim 18, wherein the reflective particles comprise one or more of Highlight particles, gadolinium oxy-sulfide particles, bismuth germenate particles, lutetium orthosilicate particles, gadolinium gallium garnet particles.

[c20] 20.The method of claim 12, wherein between 20-60 percent of a volume of the glass compound comprises the reflective particles.

[c21] 21.The method of claim 12, wherein the glass compound contains a light absorber compound.

[c22] 22.The method of claim 21, wherein the light absorber compound comprises Cr_2O_3.

[c23] 23.A detector module for use in a CT imaging system, comprising:
a scintillator array having a plurality of projecting elements disposed proximate one another and a glass compound disposed on the plurality of projecting elements, the glass compound containing a plurality of reflective particles, wherein the projecting elements emit light in

response to receiving x-rays; and

a photodiode array configured to receive light emitted from the scintillator array and to generate electrical signals responsive thereto.

[c24] 24.The detector module of claim 23, further comprising a ceramic substrate coupled to the photodiode array.

[c25] 25.The detector module of claim 23, wherein the projecting elements are constructed from a ceramic.

[c26] 26.The detector module of claim 23, wherein the glass compound comprises one of an oxide glass, a fluoride glass, and an oxy-fluoride glass.

[c27] 27.The detector module of claim 23, wherein the glass compound has a reflective index less than or equal to 1.6.

[c28] 28.The detector module of claim 23, wherein the glass compound contains Chloride for reducing a melting temperature of the glass.

[c29] 29.The detector module of claim 23, wherein substantially all of the reflective particles are 100-300 microns in diameter.

[c30] 30.The detector module of claim 23, wherein the reflective particles comprise one or more of TiO_2 particles, Ta

O_5 particles, PbO particles, Bi_2O_3 particles, HfO_2 particles, WO_3 particles, UO_2 particles, Yb_2O_3 particles, and ThO_2 particles.

[c31] 31.The detector module of claim 30, wherein the reflective particles are comprise one or more of Highlight particles, gadolinium oxy-sulfide particles, bismuth germenate particles, lutetium orthosilicate particles, gadolinium gallium garnet particles.

[c32] 32.The detector module of claim 23, wherein between 20-60 percent of a volume of the glass compound comprises the reflective particles.

[c33] 33.The detector module of claim 23, wherein the glass compound contains a light absorber compound.

[c34] 34.The detector module of claim 33, wherein the light absorber compound comprises Cr_2O_3.